UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

IN THE MATTER OF THE PETER COOPER (MARKHAMS) SUPERFUND SITE	:	
Albert Trostel & Sons Co; Badger State Tanning Co.; Blackhawk Leather Ltd.; Brown Group, Inc.; Garden State Tanning, Inc.; Irving Tanning Company; Prime Tanning Company, Inc.; S.B. Foot Tanning Company; Seton Company; Viad Corp.; Wilhelm Enterprises Corporation,	:	Index No. CERCLA-02-2000-2033
Respondents	:	
Proceeding under Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. § 9606(a)	:	

ADMINISTRATIVE ORDER FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY

I. INTRODUCTION

1. This Administrative Order ("Order") is being issued by the United States Environmental Protection Agency ("EPA") to the above-captioned Respondents (hereinafter, the "Respondents"). The Order concerns the preparation and performance of a remedial investigation and feasibility study (hereinafter, the "RI/FS") concerning the Peter Cooper (Markhams) Site (hereinafter, the "Site") located near the hamlet of Markhams in the Town of Dayton, Cattaraugus County, New York.

II. JURISDICTION

2. This Order is issued to Respondents by EPA under the authority vested in the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended ("CERCLA"), 42 U.S.C. § 9606(a). This authority

was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12580 (52 Fed. Reg. 2926, January 29, 1987), and was further delegated to EPA Regional Administrators on September 13, 1987 by EPA Delegation No. 14-14-B.

III. PARTIES BOUND

3. This Order shall apply to and be binding upon the Respondents and their successors and assigns. Respondents are jointly and severally responsible for carrying out all actions required of them under this Order. No change in the ownership or corporate status of any Respondent or of its facilities or the Site shall alter any Respondent's responsibilities under this Order.

4. Respondents shall provide a copy of this Order to any subsequent owners or successors before a controlling interest in ownership rights or stock or assets in a corporation are transferred. Respondents shall provide a copy of this Order to all contractors, subcontractors, laboratories, and consultants which are retained to conduct any work performed under this Order, within fourteen (14) days after the effective date of this Order or the date of retaining their services, whichever is later. Respondents shall condition any such contracts upon satisfactory compliance with this Order. Notwithstanding the terms of any contract, Respondents are responsible for compliance with this Order and for ensuring that their employees, contractors, consultants, subcontractors and agents comply with this Order.

5. The activities conducted under this Order are subject to approval by EPA and shall provide all appropriate information for the RI/FS and for a record of decision that is consistent with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 C.F.R. Part 300. The activities conducted by or on behalf of Respondents under this Order shall be conducted in compliance with all applicable EPA guidance, policies, and procedures and any amendments thereto.

IV. FINDINGS OF FACT AND CONCLUSIONS OF LAW

6. The "Site," which includes a property approximately 106 acres in size, is situated in a rural farmland area near the hamlet of Markhams in the Town of Dayton, Cattaraugus County, New York. The Site is owned by the now defunct Peter Cooper Corporations ("Peter Cooper").

7. From 1955 to 1971, Peter Cooper utilized approximately seven acres of the Site property as a landfill to dispose of waste materials from its glue manufacturing facility in Gowanda, New York. In 1972, under New York State oversight, Peter Cooper conducted a removal of approximately 38,600 tons of waste material from the Gowanda facility and disposed of such materials in a former cornfield (about 15 acres) at the Site.

8. The materials disposed at the Site consist of wastes from a protein glue manufacturing process. The waste materials which have been described as cookhouse sludge, hides and unknowns, have been shown to contain hazardous substances including, but not limited to, chromium, arsenic, and zinc.

9. The presence of chromium and other hazardous substances in the surface soils, subsurface soils, and groundwater at the Site has been documented in past studies. A study conducted by Peter Cooper in 1989, subject to the oversight of the New York State Department of Environmental Conservation ("NYSDEC"), determined that groundwater at the Site contaminated with heavy metals was being discharged to a marsh area designated as a freshwater wetland.

10. Among the contaminants found at the Site are contaminants, as identified in paragraph 8 above, which are "hazardous substances" as defined by Section 101 (14) of CERCLA, 42 U.S.C. §9601 (14).

11. Effective March 6, 2000, the Site was placed on the National Priorities List, 40 C.F.R. Part 300, Appendix B. The National Priorities List is established pursuant to Section 105(a) of CERCLA, 42 U.S.C. §9605(a).

12. The Site constitutes a "facility" within the meaning of Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

13. The conditions described in paragraphs 8-9 above, constitute an actual "release" of hazardous substances from the facility, as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22). In addition, there is a threat of further releases of hazardous substances at and from the Site.

14. Continued release of hazardous substances from the Site would likely have significant effects upon aquatic receptors including, but not limited to, the migratory waterfowl that utilize the Site for feeding, nesting, and resting habitat.

15. Each of the Respondents is a "person" within the meaning of Section 101(21) of CERCLA, 42 U.S.C. § 9601(21). Respondent Wilhelm Enterprises Corporation was an owner or operator of the Site at the time of disposal of hazardous substances at the Site and is thus a responsible party within the meaning of Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2). Each of the remaining Respondents listed in the caption to this Order arranged for the disposal or treatment of materials containing hazardous substances which came to be disposed of at the Site, and is accordingly a responsible party within the meaning of Section 107(a)(3) of CERCLA, 42 U.S.C. § 9607(a)(3).

16. EPA gave Respondents an opportunity to enter into an Administrative Order on Consent ("AOC") covering the performance of an RI/FS of the Site. However, EPA and Respondents were not able to reach agreement on the terms of such an AOC.

17. The actions required by this Order are necessary to protect the public health or welfare or the environment, are in the public interest, are consistent with CERCLA and the NCP, and are expected to expedite effective remedial action.

V. NOTICE

18. By providing a copy of this Order to the New York State Department of Environmental Conservation ("NYSDEC"), EPA is notifying the State of New York (the "State") that this Order is being issued and that EPA is the lead agency for coordinating, overseeing, and enforcing the response action required by this Order.

VI. DETERMINATION

19. Based on the FINDINGS OF FACT and CONCLUSIONS OF LAW set forth above and the entirety of the administrative record, the Regional Administrator has determined that the release or threatened release of hazardous substances at the Site may present an imminent and substantial endangerment to the public health or welfare or the environment.

VII. ORDER

20. Based on the foregoing, Respondents are hereby ordered, jointly and severally, to comply with the following provisions, all documents incorporated by reference into this Order, and all schedules and deadlines in this Order, attached to this Order, or incorporated by reference into this Order.

VIII. NOTICE OF INTENT TO COMPLY

21. Respondents shall provide, not later than five (5) days after the effective date of this Order, written notice to EPA stating whether they will comply with the terms of this Order. If Respondents do not unequivocally commit to perform the Work as provided by this Order, they shall be deemed to have violated this Order and to have failed or refused to comply with this Order. Respondents' written notice shall describe, using facts that exist on or prior to the effective date of this Order, any "sufficient cause" defenses asserted by Respondents under Sections 106(b) and 107(c)(3) of CERCLA, 42 U.S.C. §§ 9606(b) and 9607(c)(3). The absence of a response by EPA to the notice required by this paragraph shall not be deemed to be an acceptance of Respondents' assertions.

IX. WORK TO BE PERFORMED

22. All work performed under this Order shall be under the direction and supervision of qualified personnel. Within thirty (30) days of the effective date of this Order, Respondents shall provide written notice to EPA of the names, titles, and qualifications of the personnel, including contractors, subcontractors, consultants and laboratories, to be used in carrying out the work described in the Work Plan that is to be approved by EPA pursuant to this Order, as they may be modified pursuant to Section XII, below. The qualifications of the persons undertaking the work for Respondents shall be subject to EPA's review for verification that such persons meet minimum technical background and experience requirements. The Order is contingent upon Respondents' demonstration to EPA's satisfaction that Respondents are qualified to perform properly and promptly the actions set forth in the Order and the Work Plan, as it may be

modified pursuant to Section XII, below. If EPA disapproves, in writing, of any person(s)' technical qualifications; Respondents shall notify EPA of the identity and qualifications of the replacement(s) within fourteen (14) days of the written notice. If EPA subsequently disapproves of the replacement(s), EPA reserves the right to terminate this Order, to conduct a complete RI/FS, and to seek reimbursement for costs and penalties from Respondents. During the course of the RI/FS, Respondents shall notify EPA in writing of any changes in or additions to the personnel used to carry out such work, providing their names, titles, and qualifications. EPA shall have the same right to approve changes in and additions to personnel as it has hereunder regarding the initial notification.

23. Respondents shall conduct the work required hereunder in accordance with CERCLA, the NCP, and guidance which EPA identifies to Respondents, including, but not limited to, the Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (OSWER Directive No. 9355.3-01) (hereinafter, the "RI/FS Guidance"), Guidance for Data Usability in Risk Assessment, (OSWER Directive #9285.7-05), as well as guidance referenced therein, as they may be amended or modified by EPA. The general activities that Respondents are required to perform are also described more fully in the guidance documents and in the Statement of Work or "SOW." The SOW is attached as Appendix 1 to this Order and is incorporated into and made an enforceable part of this Order. Respondents shall perform the Work in accordance with this Section and the SOW (including any EPA-approved modifications to the SOW), and shall comply with all other requirements of this Order. All work performed under this Order shall be in accordance with this Section and the schedules and the list of deliverables set forth in the SOW, and in full accordance with the schedules, standards, specifications, and other requirements of the RI/FS Work Plan, as initially approved by EPA, and as it may be amended or modified by EPA. For purposes of this Order, day means calendar day unless otherwise noted in this Order.

24. EPA reserves the right to comment on, modify and direct changes for all deliverables. Respondents must fully correct all deficiencies and incorporate and integrate all information and comments supplied by EPA either in subsequent or resubmitted deliverables.

25. Respondents shall not proceed further with any subsequent activities or tasks until receiving EPA approval for the RI/FS Work Plan. While awaiting EPA approval of these deliverables, Respondents shall proceed with all other tasks and activities which may be conducted independently of these deliverables, in accordance with the schedule set forth in this Order.

26. For all remaining deliverables not enumerated above in the previous paragraph, Respondents shall proceed with all subsequent tasks, activities and deliverables without awaiting EPA approval on the submitted deliverable. EPA reserves the right to stop Respondents from proceeding further, either temporarily or permanently, on any task, activity or deliverable at any point during the RI/FS.

27. In the event that Respondents amend or revise a report, plan or other submittal upon receipt of EPA comments, if EPA in its discretion subsequently disapproves of the revised

submittal or any portion thereof, or if subsequent submittals do not fully reflect EPA's directions for changes related to performance of the RI/FS , EPA retains the right, in its sole discretion, to seek statutory penalties, perform its own studies, complete the RI/FS (or any portion of the RI/FS) under CERCLA and the NCP, and seek reimbursement from the Respondents and/or other potentially responsible parties for its costs; and/or seek any other appropriate relief.

28. In the event that EPA takes over some of the tasks, but not the preparation of the RI and FS reports, Respondents shall incorporate and integrate information supplied by EPA into the final RI and FS reports.

29. The failure of EPA to either expressly approve, disapprove, or comment upon Respondents' submissions within a specified time period(s) shall not be construed as approval by EPA.

30. Respondents shall assure that all work performed, samples taken and analyses conducted conform to the requirements of the RI/FS Work Plan, the EPA-approved QAPP and guidances identified therein. Respondents shall assure that field personnel used by Respondents are properly trained in the use of field equipment and in chain of custody procedures.

31. Respondents shall, prior to any off-Site shipment of hazardous substances from the Site to an out-of-State waste management facility, provide written notification to the appropriate state environmental official in the receiving state and to EPA's Project Coordinator of such shipment of hazardous substances. However, the notification of shipments shall not apply to any such off-Site shipments when the total volume of such shipments will not exceed 10 cubic yards.

a. The notification shall be in writing, and shall include the following information, where available: (1) the name and location of the facility to which the hazardous substances are to be shipped; (2) the type and quantity of the hazardous substances to be shipped; (3) the expected schedule for the shipment of the hazardous substances; and (4) the method of transportation. Respondents shall notify the receiving state of major changes in the shipment plan, such as a decision to ship the hazardous substances to another facility within the same state, or to a facility in another state.

b. The identity of the receiving facility and state to which any hazardous substances from the Site will be shipped will be determined by Respondents following the award of the contract for the RI/FS. Respondents shall provide all relevant information, including information under the categories noted in subparagraph a., above, on the off-Site shipments, as soon as practical after the award of the contract and before the hazardous substances are actually shipped.

X. NOTIFICATION AND REPORTING REQUIREMENTS

32. All reports and other documents submitted by Respondents to EPA (other than the monthly progress reports referred to below) which purport to document Respondents' compliance with the terms of this Order shall be signed by a responsible corporate official of one

or more of the Respondents; or by the Project Coordinator who has been delegated this responsibility by the Respondents, whose qualifications have been found by EPA to be acceptable pursuant to paragraph 45 of this Order, and who will certify that he/she has been fully authorized by Respondents to submit such a document and to legally bind all Respondents thereto. Notwithstanding such a delegation of responsibility, Respondents shall remain liable for the proper performance of the work required by this Order. For purposes of this Order, a responsible corporate official is an official who is in charge of a principal business function.

33. Until the termination of this Order, Respondents shall prepare and provide EPA with written monthly progress reports which: (1) describe the actions which have been taken toward achieving compliance with this Order during the previous month; (2) include all results of sampling, tests, modeling and all other data (including raw data) received or generated by or on behalf of Respondents during the previous month in the implementation of the work required hereunder; (3) describe all actions, data and plans which are scheduled for the next two months and provide other information relating to the progress of work as is customary in the industry; (4) include information regarding percentage of completion, all delays encountered or anticipated that may affect the future schedule for completion of the work required hereunder, and a description of all efforts made to mitigate those delays or anticipated delays. These progress reports shall be submitted to EPA by Respondents by the fifteenth (15) day of every month following the effective date of this Order.

34. All work plans, reports, notices and other documents required to be submitted to EPA under this Order shall be sent by certified mail, return receipt requested, by overnight delivery or by courier to the following addressees:

7 copies: (including 1 un-bound copy)	Chief, Western New York Superfund Remediation Section Emergency and Remedial Response Division United States Environmental Protection Agency 290 Broadway, 20th Floor New York, New York 10007-1866 Attn: Sherrel Henry Peter Cooper (Markhams) Superfund Site Project Coordinator
1 copy:	Chief, New York/Caribbean Superfund Branch Office of Regional Counsel United States Environmental Protection Agency 290 Broadway, 17th Floor New York, New York 10007-1866 Attn: George A. Shanahan Peter Cooper (Markhams) Superfund Site Attorney
1 copy:	Bureau Director- Western Remedial Action Division of Environmental Remediation New York State Department of Environmental Conservation 50 Wolf Road

Albany, New York 12233-7010

3 copies: Regional Remediation Engineer
New York State Department of Environmental
Conservation, Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999
Attn: Maurice Moore

1 copy: Director, Bureau of Environmental Exposure Investigation
New York State Department of Health
Flanigan Square, 547 River Street
Troy, New York 12180-2216
Attn: Dawn Hettrick

1 copy: Director, Environmental Health
Cattaraugus County Department of Health
1701 Lincoln Ave., Suite 4010
Olean, New York 14760-1134
Attn: Eric Wohlers

35. Respondents shall give EPA at least fourteen (14) days advance notice of all field work or field activities to be performed by Respondents pursuant to this Order.

XI. EMERGENCY RESPONSE AND NOTIFICATION OF RELEASES

36. Upon the occurrence of any event during performance of the work required hereunder which, pursuant to Section 103 of CERCLA, requires reporting to the National Response Center, Respondents shall immediately orally notify the EPA Project Coordinator (or, in the event of the unavailability of the EPA Project Coordinator, the Chief of the New York Remediation Branch of the Emergency and Remedial Response Division of EPA Region II), in addition to the reporting required by Section 103. Within fourteen (14) days of the onset of such an event, Respondents shall also furnish EPA with a written report setting forth the events which occurred and the measures taken, and to be taken, in response thereto. The reporting requirements of this paragraph are in addition to, not in lieu of, reporting under Section 103 of CERCLA, 42 U.S.C. § 9603, and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. § 11004.

37. In the event of any action or occurrence during Respondents' performance of the requirements of this Order which causes or threatens to cause a release of a hazardous substance or which may present an immediate threat to public health or welfare or the environment, Respondents shall immediately take all appropriate action to prevent, abate, or minimize the threat and shall immediately notify EPA as provided in the preceding paragraph. Respondents shall take such action in accordance with applicable provisions of this Order including, but not

limited to, the Health and Safety Plan. In the event that EPA determines that (a) the activities performed pursuant to this Order, (b) significant changes in conditions at the Site, or (c) emergency circumstances occurring at the Site pose a threat to human health or the environment, EPA may direct Respondents to stop further implementation of any actions pursuant to this Order or to take other and further actions reasonably necessary to abate the threat.

38. Nothing in the preceding paragraph shall be deemed to limit any authority of the United States to take, direct, or order all appropriate action to protect human health and the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances on, at, or from the Site.

XII. MODIFICATION OF THE WORK PLAN

39. If at any time during the RI/FS process, Respondents identify a need for additional data, a memorandum documenting the need for additional data shall be submitted to the EPA Project Coordinator within twenty (20) days of identification. EPA in its discretion will determine whether the additional data will be collected by Respondents and whether it will be incorporated into reports and deliverables.

40. In addition to the authorities in the NCP, in the event that EPA determines that unanticipated or changed circumstances at the Site, or conditions posing an immediate threat to human health or welfare or the environment, warrant changes in the RI/FS Work Plan, EPA will modify or amend, or direct Respondents to modify or amend, the RI/FS Work Plan accordingly. Respondents shall implement the RI/FS Work Plan as modified or amended.

41. EPA may determine that in addition to tasks defined in the approved RI/FS Work Plan, other additional work may be necessary to accomplish the objectives of the RI/FS. EPA may require, pursuant to this Order, that the Respondents perform these response actions in addition to those required by the RI/FS Work Plan, including any approved modifications, if EPA determines that such actions are necessary for a complete RI/FS. Respondents shall implement the additional tasks which EPA determines are necessary. The additional work shall be completed according to the standards, specifications and schedule set forth or approved by EPA in written modifications to the RI/FS Work Plan or written Work Plan supplements. EPA reserves the right to conduct the work itself at any point, to seek reimbursement for the costs associated with the work from Respondents, and/or to seek any other appropriate relief.

XIII. FINAL RI/FS, PROPOSED PLAN, PUBLIC COMMENT, RECORD OF DECISION, ADMINISTRATIVE RECORD

42. EPA retains the responsibility for the release to the public of the RI and FS reports. EPA retains responsibility for the preparation and release to the public of the proposed remedial action plan and record of decision in accordance with CERCLA and the NCP.

43. EPA will provide Respondents with the final RI and FS reports (to the extent that Respondents do not already have these reports), proposed remedial action plan, and record of decision.

44. EPA will assemble the administrative record file for selection of the remedial action. Respondents shall submit to EPA documents developed during the course of the RI/FS upon which selection of the remedial action may be based. Respondents shall provide copies of plans, task memoranda including documentation of field modifications, recommendations for further action, quality assurance memoranda and audits, raw data, field notes, laboratory analytical reports, and other reports. Respondents shall additionally submit any records of communications between Respondents and state, local or other federal authorities concerning the implementation of this Order or selection of the response action.

XIV. PROJECT COORDINATORS, OTHER PERSONNEL

45. EPA has designated the following individual as its Project Coordinator with respect to the Site:

Sherrel Henry
U. S. Environmental Protection Agency
Region II
Emergency and Remedial Response Division
290 Broadway, 20th Floor
New York, New York 10007-1866
(212) 637-4273
E-mail: henry.sherrel@epa.gov

Not later than seven (7) days after the effective date of this Order, Respondents shall select their own Project Coordinator and shall notify EPA in writing of the name, address, qualifications, job title and telephone number of that Project Coordinator. He or she shall have technical expertise sufficient to adequately oversee all aspects of the work contemplated by this Order. Respondents' and EPA's Project Coordinators shall be responsible for overseeing the implementation of this Order and shall coordinate communications between EPA and Respondents. EPA and Respondents may change their respective Project Coordinators. Such a change shall be accomplished by notifying the other parties in writing at least ten (10) days prior to the change where possible, and concurrently with the change or as soon thereafter as possible in the event that advance notification is not possible.

46. EPA's Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager and On-Scene Coordinator by the NCP. In addition, EPA's Project Coordinator shall have the authority, consistent with the NCP, to halt any work required by this Order, and to take any necessary response action when he/she determines that conditions at the Site may present an immediate endangerment to public health or welfare or the environment. The absence of the EPA Project Coordinator from the area under study pursuant to this Order shall not be cause for the stoppage or delay of work.

47. All activities required of Respondents under the terms of this Order shall be performed only by qualified persons possessing all necessary permits, licenses, and other authorizations required by applicable law.

XV. OVERSIGHT

48. During the implementation of the requirements of this Order, Respondents and their contractors and subcontractors shall be available for such conferences and inspections with EPA as EPA may determine are necessary for EPA to adequately oversee the work being carried out and/or to be carried out.

49. Respondents and their employees, agents, contractors, representatives and consultants shall cooperate with EPA in its efforts to oversee Respondents' implementation of this Order.

XVI. SAMPLING, ACCESS AND DATA AVAILABILITY/ADMISSIBILITY

50. If any area to which access is necessary to perform work under this Order is owned in whole or in part by parties other than Respondents, Respondents shall obtain, or use their best efforts to obtain, access agreements from the present owner(s) within thirty (30) days of the effective date of this Order. Such agreements shall provide access for EPA and NYSDEC and their contractors and oversight officials, and the Respondents or their authorized representatives, and agreements for such access shall specify that Respondents are not EPA's or NYSDEC's representatives with respect to liability associated with Site activities. Copies of such agreements shall be provided to EPA and NYSDEC upon request prior to Respondents' initiation of field activities. If access agreements are not obtained within the time referenced above, Respondents shall immediately notify EPA of their failure to obtain access. EPA may, in its sole discretion, obtain access for Respondents, perform those tasks or activities with EPA contractors, or terminate this Order in the event that Respondents cannot obtain access agreements. In the event that EPA performs those tasks or activities with EPA contractors and does not terminate this Order, Respondents shall perform all other activities not requiring access to the given property. Respondents additionally shall integrate the results of any such tasks undertaken by EPA into their reports and deliverables.

51. At all reasonable times, EPA and its authorized representatives shall have the authority to enter and freely move about all property at the Site and off-Site areas where work, if any, is being performed, for the purposes of inspecting conditions, activities, the results of activities, records, operating logs, and contracts related to the Site or Respondents and their contractor pursuant to this Order; reviewing the progress of the Respondents in carrying out the terms of this Order; conducting tests as EPA or its authorized representatives deem necessary; using a camera, sound recording device or other documentary type equipment; and verifying the data submitted to EPA by Respondents. All parties with access to the Site under this paragraph shall comply with all approved health and safety plans.

52. All data, records, photographs and other information created, maintained or received by Respondents or theirs agents, contractors or consultants in connection with implementation of the

work under this Order, including but not limited to contractual documents, quality assurance memoranda, raw data, field notes, laboratory analytical reports, invoices, receipts, work orders and disposal records, shall, without delay, be made available to EPA on request. EPA shall be permitted to copy all such documents and other items.

53. Upon request by EPA or its designated representatives, Respondents shall provide EPA or its designated representatives with duplicate and/or split samples of any material sampled in connection with the implementation of this Order, or allow EPA or its designated representatives to take such duplicate or split samples.

54. Respondents may assert a claim of business confidentiality under 40 C.F.R. § 2.203, covering part or all of the information submitted to EPA pursuant to the terms of this Order, provided such claim is allowed by section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7). This claim shall be asserted in the manner described by 40 C.F.R. § 2.203(b) and substantiated at the time the claim is made. Information determined to be confidential by EPA will be given the protection specified in 40 C.F.R. Part 2. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA without further notice to Respondents.

55. Notwithstanding any other provision of this Order, EPA hereby retains all of its information gathering, access and inspection authority under CERCLA, the Solid Waste Disposal Act, 42 U.S.C. §§ 6901-6991, and any other applicable statute or regulation.

XVII. OTHER APPLICABLE LAWS

56. Respondents shall comply with all laws that are applicable when performing the RI/FS. No local, state, or federal permit shall be required for any portion of the work, including studies, required hereunder which is conducted entirely on-Site, where such work is carried out in compliance with Section 121 of CERCLA; however, Respondents must comply with the substantive requirements that would otherwise be included in such permits. For any work performed pursuant to this Order which is not "on-site", as defined in Sections 300.5 and 300.400(e) of the NCP, Respondents shall obtain all permits necessary under applicable laws and shall submit timely applications and requests for any such permits. This Order is not, nor shall it act as, a permit issued pursuant to any federal or state statute or regulation.

XVIII. RECORD PRESERVATION

57. All records and documents in Respondents' possession that relate in any way to the Site shall be preserved during the conduct of this Order and for a minimum of ten (10) years after commencement of construction of any remedial action which is selected following the completion of the RI/FS. Respondents shall acquire and retain copies of all documents that relate to the Site and are in the possession of its employees, agents, accountants, contractors, or attorneys. After this 10-year period, Respondents shall notify EPA at least ninety (90) days

before the documents are scheduled to be destroyed. If EPA requests that the documents be saved, Respondents shall, at no cost to EPA, give the documents or copies of the documents to EPA.

XIX. COMMUNITY RELATIONS

58. Respondents shall cooperate with EPA in providing information relating to the work required hereunder to the public. To the extent requested by EPA, Respondents shall participate in the preparation of all appropriate information disseminated to the public and make presentations at, and participate in, public meetings which may be held or sponsored by EPA to explain activities at or concerning the Site.

XX. DELAY IN PERFORMANCE

59. Any delay in performance of this Order that, in EPA's judgment, is not properly justified by Respondents under the terms of this Section shall be considered a violation of this Order. Any delay in performance of this Order shall not affect Respondents' obligations to perform all obligations fully under the terms and conditions of this Order.

60. Respondents shall notify EPA of any delay or anticipated delay in performing any requirement of this Order. Such notification shall be made by telephone to EPA's Project Coordinator within forty-eight (48) hours after Respondents first knew or should have known that a delay might occur. Respondents shall adopt all reasonable measures to avoid or minimize any such delay.. Within five (5) business days after notifying EPA by telephone, Respondents shall provide written notification fully describing the nature of the delay, any justification for the delay, any reason why Respondents should not be held strictly accountable for failing to comply with any relevant requirements of this Order, the measures planned and taken to minimize the delay, and a schedule for implementing the measures that have been or will be taken to mitigate the effect of the delay. Increased costs or expenses associated with implementation of the activities called for in this Order are not a justification for any delay in performance.

XXI. ASSURANCE OF ABILITY TO COMPLETE WORK

61. Respondents shall demonstrate their ability to complete the Work required by this Order and to pay all claims that arise from the performance of the Work by obtaining and presenting to EPA within ninety (90) days of the effective date of this Order, one of the following; (1) a performance bond; (2) a letter of credit; (3) a guarantee by a third party; or (4) internal financial information to allow EPA to determine that Respondents have sufficient assets available to perform the Work. Respondents shall demonstrate financial assurance in an amount no less than the estimate of cost for the RI/FS for the Site. If Respondents seek to demonstrate ability to complete the RI/FS by means of internal financial information, or by a guarantee of a third party, they shall resubmit such information annually, on the anniversary of the effective date of this Order. If EPA determines that such financial information is inadequate, Respondents shall, within thirty (30) days after receipt of EPA's notice of determination, obtain and present to EPA for approval additional financial assurances consistent with this paragraph.

62. At least seven (7) days prior to commencing any work at the Site pursuant to this Order, Respondents shall submit to EPA a certification that Respondents or their contractors and subcontractors have adequate insurance coverage or have indemnification for liabilities for injuries or damages to persons or property which may result from the activities to be conducted by or on behalf of Respondents pursuant to this Order. Respondents shall ensure that such insurance or indemnification is maintained for the duration of the Work required by this Order.

XXII. UNITED STATES NOT LIABLE

63. The United States, by issuance of this Order, assumes no liability for any injuries or damages to persons or property resulting from acts or omissions by Respondents, or their directors, officers, employees, agents, representatives, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order. Neither EPA nor the United States may be deemed to be a party to any contract entered into by Respondents or their directors, officers, employees, agents, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order.

XXIII. ENFORCEMENT AND RESERVATIONS

64. EPA reserves the right to bring an action against Respondents under Section 107 of CERCLA, 42 U.S.C. § 9607, for recovery of any response costs incurred by the United States in connection with the Site. This reservation shall include but not be limited to past costs, future costs, direct costs, indirect costs, the costs of oversight, as well as accrued interest as provided in Section 107(a) of CERCLA.

65. Notwithstanding any other provision of this Order, at any time during the RI/FS, EPA may perform its own studies, complete the RI/FS (or any portion of the RI/FS) as provided in CERCLA and the NCP, and seek reimbursement from Respondents for its costs, or seek any other appropriate relief.

66. Nothing in this Order shall preclude EPA from taking any additional enforcement actions, including modification of this Order or issuance of additional orders, and/or additional remedial or removal actions as EPA may deem necessary, or from requiring Respondents in the future to perform additional activities pursuant to CERCLA, or any other applicable law.

67. Notwithstanding any provision of this Order, the United States hereby retains all of its information gathering, inspection and enforcement authorities and rights under CERCLA, RCRA and any other applicable statutes or regulations.

68. Respondents shall be subject to civil penalties under Section 106(b) of CERCLA, 42 U.S.C. § 9606(b), of not more than $27,500 for each day in which they willfully violate, or fail or refuse to comply with this Order without sufficient cause. This penalty amount is subject to possible further adjustments consistent with the Debt Collection and Improvement Act of 1996, Pub. L. No. 104-134, 110 Stat. 1321 (1996), and the regulations promulgated thereunder, including the Civil Monetary Penalty Inflation Adjustment Rule, 61 Fed. Reg. 69360 (Dec. 31,

1996). In addition, failure to properly carry out response actions under this Order, or any portion hereof, without sufficient cause, may result in liability under Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3), for punitive damages in an amount at least equal to, and not more than three times the amount of, any costs incurred by EPA as a result of such failure to take proper action.

69. Nothing in this Order shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person for any liability it may have arising out of or relating in any way to the Site. Nothing herein shall constitute a finding that Respondents are the only responsible parties with respect to the release and threatened release of hazardous substances at or from the Site.

70. If a court issues an order that invalidates any provision of this Order or finds that Respondents have sufficient cause not to comply with one or more provisions of this Order, Respondents shall remain bound to comply with all provisions of this Order not invalidated by the court's order.

XXIV. EFFECTIVE DATE AND COMPUTATION OF TIME

71. This Order shall be effective eleven (11) days after receipt by Respondents, unless a conference is requested pursuant to paragraph 72, below. If such conference is timely requested, this Order shall become effective three (3) days following the date the conference is held, unless the effective date is modified by EPA. All times for performance of ordered activities shall be calculated from this effective date.

XXV. OPPORTUNITY TO CONFER

72. Respondents may, within ten (10) days after receipt of this Order, request a conference with EPA to discuss this Order. If requested, the conference shall occur within seven (7) days of Respondents' request for a conference.

73. The purpose and scope of the conference shall be limited to issues involving the implementation of the Work required by this Order and the extent to which Respondents intend to comply with this Order. This conference is not an evidentiary hearing, and does not constitute a proceeding to challenge this Order. It does not give Respondents a right to seek review of this Order, or to seek resolution of potential liability, and no official stenographic record of the conference will be made. At any conference held pursuant to Respondents' request, Respondents may appear in person or by an attorney or other representative.

74. Requests for a conference must be by telephone to George A. Shanahan, Assistant Regional Counsel, EPA Region II, telephone (212) 637-3171, followed by written confirmation mailed that day to Mr. Shanahan and the EPA Project Coordinator at the addresses set forth in Paragraph 34 of this Order.

XXVI. TERMINATION AND SATISFACTION

75. This Order will be terminated by EPA if Respondents demonstrate in writing and certify to the satisfaction of EPA that all Work and activities required under this Order have been performed fully in accordance with this Order and EPA has approved the certification in writing. Such an approval by EPA, however, shall not relieve Respondents of any remaining obligations under the Order, including those requirements set forth in Section XVIII regarding record preservation. Respondents' written submission under this paragraph shall include a sworn statement by a responsible official(s) of the Respondents which states the following: "I certify that the information contained in or accompanying this submission is true, accurate and complete."

U.S. ENVIRONMENTAL PROTECTION AGENCY

Jeanne M. Fox
Regional Administrator
U.S. Environmental Protection Agency
Region II

9/27/00
Date

APPENDIX 1
STATEMENT OF WORK FOR
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY AT THE
PETER COOPER (MARKHAMS) SUPERFUND SITE
DAYTON, NEW YORK

A. INTRODUCTION

1. The purpose of this remedial investigation/feasibility study (RI/FS) is to investigate the nature and extent of contamination at the Peter Cooper (Markhams) Site (the "Site"), and develop and evaluate potential remedial alternatives. The RI and FS are interactive and may be conducted concurrently so that the data collected in the RI influences the development of remedial alternatives in the FS, which in turn affects the data needs and the scope of treatability studies, if needed.

2. The Respondents will conduct this RI/FS and will produce draft RI and FS reports that are in accordance with this statement of work, the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (U.S. EPA, Office of Emergency and Remedial Response, October 1988), and any other guidance that EPA uses in conducting a RI/FS, as well as any additional requirements in the administrative order. The RI/FS Guidance describes the report format and the required report content. The Respondents will furnish all necessary personnel, materials, and services needed for, or incidental to, the performance of the RI/FS, except as otherwise specified in the administrative order.

3. At the completion of the RI/FS, EPA will be responsible for the selection of the Site's remedy and will document the selection in a Record of Decision (ROD). The remedial action alternative selected by EPA will meet the cleanup standards specified in CERCLA Section 121. That is, the selected remedial action will be protective of human health and the environment, will be in compliance with, or include a waiver of, applicable or relevant and appropriate requirements of other laws, will be cost-effective, will utilize permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable, and will address the statutory preference for treatment as a principal element. The final RI/FS report, as adopted by EPA, and the baseline risk assessment will, with the administrative record, form the basis for the selection of the Site's remedy and will provide the information necessary to support the development of the ROD.

4. As specified in CERCLA Section 104(a)(1), as amended by SARA, EPA will provide oversight of the Respondents' activities throughout the RI/FS. The Respondents will support EPA's initiation and conduct of activities related to the implementation of oversight activities.

B. TASK I - SCOPING

1. The RI/FS is conducted to gather sufficient data and information necessary to characterize the nature and extent of contamination in order to support the selection of a remedy

for the Site that will reduce or eliminate risks to human health or the environment associated with contamination at the Site.

2. The RI/FS achieves its objectives by determining the horizontal and vertical distribution and concentration of hazardous substances in the soil, in surface and ground water, building interiors, and in the air, and their association with the Site.

3. Before planning RI/FS activities, all existing data for the Site will be thoroughly compiled and reviewed by the Respondents. Existing data can be review in the HRS package prepared by Roy F. Weston.

4. The Respondents will conduct a visit to the Site during the scoping phase of the project to assist in developing a conceptual understanding of sources and areas of contamination as well as potential exposure pathways and receptors at the Site. During the visit to the Site, the Respondents should observe the Site's physiography, hydrology, geology, and demographics, as well as natural resource, ecological and cultural features. This information will be utilized to better scope the project and to determine the extent of additional data necessary to characterize the Site, better define potential ARARs, and narrow the range of preliminarily identified remedial alternatives.

5. Once the Respondents have collected and analyzed existing data and conducted a visit to the Site, the specific project scope will be planned. Project planning activities include those tasks described below as well as identifying data needs, developing a work plan, designing a data collection program, and identifying health and safety protocols. The Respondents will meet with EPA regarding the following activities before the drafting of the RI/FS work plan.

a. RI/FS Work Plan and Schedule

Within thirty (30) days of the effective date of this Order, Respondents shall submit to EPA an RI/FS Work Plan for the completion of the RI/FS. The RI/FS Work Plan should include, among other things, a detailed schedule for RI/FS activities at the Site. The schedule shall provide for the completion of the RI/FS within twelve (12) months of EPA's approval of the RI/FS Work Plan. If EPA disapproves of or requires revisions to the RI/FS Work Plan in whole or in part, Respondents shall amend and submit to EPA a revised Work Plan which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments. The RI/FS Work Plan shall include:

A. Quality Assurance/Quality Control Plan (QAPP), which shall be prepared consistent with "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations" (EPA QA/R-5, October 1998), and which shall include the following elements:

i. A detailed description of the sampling, analysis, and monitoring that shall be performed during the RI/FS phase, consistent with this Order. At a minimum, the QAPP shall provide the following:

a. A plan for the delineation of contamination in the ground water;

b. A plan for the delineation of contamination in the soil;

c. A plan for the delineation of contamination in the surface water;

d. A plan for the delineation of contamination in sediments; and

e. A plan for the delineation of contamination in wetlands.

ii. All sampling, analysis, data assessment, and monitoring shall be performed in accordance with the "Region II CERCLA Quality Assurance Manual," Revision 1, EPA Region 2, dated October 1989, and any updates thereto, or an alternate EPA-approved test method, and the guidelines set forth in this Order. All testing methods and procedures shall be fully documented and referenced to established methods or standards.

iii. The QAPP shall also specifically include the following items:

a. An explanation of the way(s) the sampling, analysis, testing, and monitoring will produce data for the RI/FS phase;

b. A detailed description of the sampling, analysis, and testing to be performed, including sampling methods, analytical and testing methods, sampling locations and frequency of sampling;

c. A map depicting sampling locations; and

d. A schedule for performance of specific tasks.

iv. In the event that additional sampling locations, testing, and analyses are utilized or required, Respondent(s) shall submit to EPA an addendum to the QAPP for approval by EPA.

v. The QAPP shall address the following elements:

Project Management

a. Title and Approval Sheet

b. Table of Contents and Document Control Format
c. Distribution List
d. Project/Task Organization and Schedule
e. Problem Definition/Background
f. Project/Task Description
g. Quality Objectives and Criteria for Measurement Data
h. Special Training Requirements/Certification
i. Documentation and Records

Measurement/Data Acquisition

j. Sampling Process Design
k. Sampling Methods Requirements
l. Sample Handling and Custody Requirements
m. Analytical Methods Requirements
n. Quality Control Requirements
o. Instrument/Equipment Testing, Inspection, and Maintenance Requirements
p. Instrument Calibration and Frequency
q. Inspection/Acceptance Requirements for Supplies and Consumables
r. Data Acquisition Requirements (Non-Direct Measurements)
s. Data Management

Assessment/Oversight

t. Assessments and Response Actions
u. Reports to Management

Data Validation and Usability

v. Data Review, Validation, and Verification Requirements
w. Validation and Verification Methods
x. Reconciliation with Data Quality Objectives

vi. In order to provide quality assurance and maintain quality control with respect to all samples to be collected, Respondent(s) shall ensure the following:

a. Quality assurance and chain-of-custody procedures shall be performed in accordance with standard EPA protocol and guidance, including the "Region II CERCLA Quality Assurance Manual," Revision 1, EPA Region 2, dated

October 1989, and any updates thereto, and the guidelines set forth in this Order.

b. The laboratory to be used must be specified. If the laboratory participates in the Contract Laboratory Program (CLP) for the analysis to be performed for this investigation, then project specific Performance Evaluation (PE) samples will not be required, as CLP laboratories run EPA PEs on a quarterly basis. If the proposed laboratory does not participate in the CLP for the analyses required, PE samples must be analyzed to demonstrate the capability to conduct the required analysis prior to being approved for use. Once a non-CLP laboratory has been selected, the laboratory should submit a copy of their Laboratory Quality Assurance Program Plan (LQAPP) to EPA for review and approval.

For any analytical work performed, including that done in a fixed laboratory, in a mobile laboratory, or in on-site screening analyses, Respondent(s) must submit to EPA a "Non-CLP Superfund Analytical Services Tracking System" form for each laboratory utilized during a sampling event, within thirty (30) days after acceptance of the analytical results. Upon completion, such documents shall be submitted to the EPA Project Coordinator, with a copy of the form and transmittal letter to:

Regional Sample Control Center Coordinator
USEPA Region 2
Division of Environmental Science & Assessment
2890 Woodbridge Avenue, Bldg. 209, MS-215
Edison, NJ 08837

c. The laboratory utilized for analyses of samples must perform all analyses according to accepted EPA methods as documented in the "Contract Lab Program Statement of Work for Organic Analysis, (OLM04.2)" or the latest revision, and the "Contract Lab Program Statement of Work for Inorganic Analysis, (ILM04.0) " or the latest revision, or other EPA approved methods.

d. Unless indicated otherwise in the approved QAPP, upon receipt from the laboratory, all data will be validated.

e. Submission of the validation package (checklist, report and Form Is containing the final data) to EPA, prepared in accordance with the provisions of Subparagraph g., below.

f. Assurance that all analytical data that are validated as required by the QAPP are validated according to the procedures stated in the "EPA Region II Contract Lab Program Organics Data Review and Preliminary Review (SOP #HW-6, Revision 11)," dated June 1996, or the latest revision, and the "Evaluation of Metals Data for the Contract Laboratory Program (SOP #HW-2, Revision 11)," dated January 1992 or the latest revision, or EPA-approved equivalent procedures. Region 2 Standard Operating Procedures are available at: *http://www.epa.gov/region02/smb/sops.htm*

g. Unless indicated otherwise in the QAPP, Respondent(s)shall require deliverables equivalent to CLP data packages from the laboratory for analytical data. Upon the EPA's request, Respondent(s) shall submit to the EPA the full documentation (including raw data) for this analytical data. EPA reserves the right to perform an independent data validation, data validation check, or qualification check on generated data.

h. Respondent(s) shall insert a provision in its contract(s) with the laboratory utilized for analyses of samples, which will require granting access to EPA personnel and authorized representatives of the EPA for the purpose of ensuring the accuracy of laboratory results related to the Site

B. A Health and Safety Plan (HSP), which shall conform to 29 CFR §1910.120, "OSHA Hazardous Waste Operations Standards," and the EPA guidance document, "Standard Operating Safety Guidelines" (OSWER, 1988).

6. Following approval or modification by EPA, the Work Plan shall be deemed to be incorporated into this Order by reference.

C. TASK II - COMMUNITY RELATIONS

EPA will develop a Site-specific community relations plan and make revisions to this plan as necessary and in accordance with EPA guidance and the NCP. To the extent requested by EPA, Respondents shall provide information supporting EPA's community relations programs.

D. TASK III - SITE CHARACTERIZATION (RI/FS Guidance, Chapter 3)

Following EPA's written approval or modification of the RI/FS Work Plan, Respondents shall implement the provisions of the RI/FS Work Plan to characterize the nature, quantity, and concentrations of hazardous substances, pollutants, or contaminants in connection with the Site. Respondents shall provide EPA with validated analytical data within forty-five (45) days of each sampling activity, in the electronic format required by EPA at the time of submission, showing the location, medium and results. Within seven (7) days of completion of field activities, Respondents shall so advise EPA in writing. Within thirty (30) days of submission to EPA of the final set of validated field data, Respondents shall submit to EPA a Site Characterization Summary Report. Within fourteen (14) days after Respondents' submittal of the Site Characterization Summary Report, Respondents shall make a presentation to EPA and the State on the findings of the Site Characterization Summary Report and discuss EPA's and the State's preliminary comments and concerns associated with the Site Characterization Summary Report. If EPA disapproves of or requires revisions to the Site Characterization Summary Report, in whole or in part, Respondents shall amend and submit to EPA a revised Site Characterization Summary Report which is responsive to the directions in all of EPA's written comments within twenty-one (21) days of receipt of EPA's comments.

1. As part of the RI, the Respondents will perform the activities described in this task, including the preparation of site characterization summaries and RI report. The overall objective of site characterization is to describe areas of the Site that may pose a threat to human health or the environment. This is accomplished by first determining the Site's physiography, geology, and hydrology. Surface and subsurface pathways of migration will be defined. The Respondents will identify the sources of contamination and define the nature, extent, and volume of the sources of contamination, including their physical and chemical constituents as well as their concentrations at incremental locations to background in the affected media. Using this information, contaminant fate and transport is then determined and projected.

2. During this phase of the RI/FS, the QAPP, and health and safety plan are implemented. Field data are collected and analyzed to provide the information required to accomplish the objectives of the study. The Respondents will notify EPA at least two weeks in advance of the field work regarding the planned dates for field activities, including ecological field surveys, field lay out of the sampling grid, excavation, installation of wells, initiating sampling, installation and calibration of equipment, pump tests, and initiation of analysis and other field investigation activities. The Respondents will demonstrate that the laboratory and type of laboratory analyses that will be utilized during characterization of the Site meet the specific QA/QC requirements and the Data Quality Objectives ("DQOs") of the Site's investigation as specified in the QAPP. In view of the unknown conditions of the Site, activities are often iterative, and to satisfy the objectives of the RI/FS it may be necessary for the Respondents to modify the work specified in the initial work plan. In addition to the deliverables below, the Respondents will provide a monthly progress report and participate in meetings with EPA at major milestones in the RI/FS process.

a. Field Investigation (3.2)

The field investigation includes the gathering of data to define the Site's physical and biological characteristics, sources of contamination, and the nature and extent of contamination at the Site. These activities will be performed by the Respondents in accordance with the RI/FS work plan and QAPP. At a minimum, this shall address the following:

i. Implement and document field support activities (3.2.1)

The Respondents will initiate field support activities following approval of the RI/FS work plan and QAPP. Field support activities may include scheduling, and procuring equipment, office space, laboratory services, and/or contractors. The Respondents may initiate other time critical field support activities, such as obtaining access to the Site, prior to approval of the RI/FS work plan and QAPP. The Respondents will provide EPA with reasonable notice prior to initiating field support activities so that EPA may adequately schedule oversight tasks. The Respondents will also notify EPA in writing upon completion of field support activities.

ii. Investigate and define Site physical and biological characteristics (3.2.2)

The Respondents will collect data on the physical and biological characteristics of the Site and its surrounding areas including the physical physiography, geology, and hydrology, and specific physical characteristics identified in the work plan. This information will be ascertained through a combination of physical measurements, observations, and sampling efforts and will be utilized to define potential transport pathways and human and ecological receptor populations. In defining the physical characteristics of the Site, the Respondents will also obtain sufficient engineering data (such as pumping characteristics) for the projection of contaminant fate and transport, and development and screening of remedial action alternatives, including information to assess treatment technologies.

iii. Define sources of contamination (3.2.3)

The Respondents will locate each source of contamination. For each location, the areal extent and depth of contamination will be determined by sampling at incremental depths on a sampling grid. The physical characteristics and chemical constituents and their concentrations will be determined for all known and discovered sources of contamination. The Respondents shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QA/QC plan and DQOs.

Defining the source of contamination will include analyzing the potential for contaminant release (e.g., long term leaching from soil), contaminant mobility and persistence, and characteristics important for evaluating remedial actions, including information to assess treatment technologies.

iv. Describe the nature and extent of contamination (3.2.4)

The Respondents will gather information to describe the nature and extent of contamination as a final step during the field investigation. To describe the nature and extent of contamination, the

Respondents will utilize the information on the Site's physical and biological characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. The Respondents will then implement an iterative monitoring program and any study program identified in the RI/FS work plan (which includes the QAPP) such that by using analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at the Site can be determined. In addition, the Respondents will gather data for calculations of contaminant fate and transport. This process is continued until the area and depth of contamination are known to the level of contamination established in the QA/QC plan and DQOs. EPA will use the information on the nature and extent of contamination to determine the level of risk presented by the Site. Respondents will use this information to help to determine aspects of the appropriate remedial action alternatives to be evaluated.

b. Data Analysis (3.4)

Evaluate Site characteristics (3.4.1)

The Respondents will analyze and evaluate the data to describe: (1) physical and biological characteristics at the Site, (2) contaminant source characteristics, (3) nature and extent of contamination and (4) contaminant fate and transport. Results of the Site's physical characteristics, source characteristics, and extent of contamination analyses are utilized in the analysis of contaminant fate and transport. The evaluation will include the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contamination as well as mobility and persistence of contaminants. Where modeling is appropriate, such models shall be identified to EPA in a technical memorandum prior to their use. All data and programming, including any proprietary programs, shall be made available to EPA together with a sensitivity analysis. The Respondents shall agree to discuss any data gaps identified by the EPA and then collect data that are necessary to complete the baseline risk assessment. (See "Guidance for Data Useability in Risk Assessment - Publication # 9285.7- 09A - April 1992.) Also, this evaluation shall include any information relevant to characteristics of the Site necessary for evaluation in the baseline risk assessment of the need for remedial action and for the development and evaluation of remedial alternatives. (See Risk Evaluation of Remedial Alternatives (Part C) - OSWER Directive 9285.7-01C - December 1991.) Analysis of data collected for characterization of the Site will meet the DQOs developed in the QA/QC plan (or revised during the RI).

c. Data Management Procedures (3.5)

The Respondents will consistently document the quality and validity of field and laboratory data compiled during the RI.

i. Document field activities (3.5.1)

Information gathered during characterization of the Site will be consistently documented and adequately recorded by the Respondents in well maintained field logs and laboratory reports. The method(s) of documentation must be specified in the work plan and QAPP. Field logs or

dedicated field log-books must be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

ii. Maintain sample management and tracking (3.5.2; 3.5.3.)

The Respondents will maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the evaluation of remedial alternatives. Analytical results developed under the work plan will not be included in the site characterization reports for the Site unless accompanied by, or cross-referenced to, a corresponding QA/QC report. In addition, the Respondents will establish a data security system to safeguard chain-of custody forms and other project records to prevent loss, damage, or alteration of project documentation.

d. Site Characterization Deliverables (3.6)

The Respondents will prepare the preliminary site characterization summary and the remedial investigation report for the Site.

Preliminary Site Characterization Summary (3.6.2)

After completing field sampling and analysis, the Respondents will prepare a concise characterization summary. This summary will review the investigative activities that have taken place, and describe and display data from the Site documenting the location and characteristics of surface and subsurface features and contamination at the Site including the affected medium, location, physical state, concentration of contaminants and quantity. In addition, the location, dimensions, physical condition and varying concentrations of each contaminant throughout each source and the extent of contaminant migration through each of the affected media will be documented. The site characterization summaries for the Site will provide EPA with a preliminary reference for the development of the risk assessment, and evaluation of the development and screening of remedial alternatives and the refinement and identification of ARARs.

e. Fate and Transport Model Memorandum.

At EPA's request, Respondents shall submit a memorandum on a fate and transport model, unless they can demonstrate to EPA's satisfaction that such a model is unnecessary. If EPA determines that a fate and transport model is required and so notifies Respondents, Respondents shall, within thirty (30) days thereafter, submit the memorandum on the model. This memorandum shall detail how a three dimensional (3-D) groundwater flow and contaminant transport model will be developed to depict effects of the Site's contaminants within the groundwater flow regime of the Site. If EPA disapproves of or requires revisions to the memorandum, in whole or in part, Respondents shall amend and submit to EPA a revised memorandum which is responsive to the

directions in all EPA comments within 21 days of receipt of EPA's comments. The results of this modeling effort shall be included in the RI/FS Report.

E. TASK IV - IDENTIFICATION OF CANDIDATE TECHNOLOGIES (4.2)

Schedule: An Identification of Candidate Technologies Memorandum shall be submitted by Respondents within thirty (30) days of Respondents' submission to the EPA of the last set of validated analytical results. The candidate technologies identified shall include innovative treatment technologies (as defined in the RI/FS Guidance) where appropriate. The listing of candidate technologies will cover the range of technologies required for alternatives analysis (Task 8.2). If EPA disapproves of or requires revisions to the technical memorandum identifying candidate technologies, in whole or in part, Respondents shall amend and submit to EPA a revised technical memorandum identifying candidate technologies which is responsive to the directions in *all EPA comments, within fourteen (14) days of receiving EPA's written comments.*

F. TASK V - TREATABILITY STUDIES; AS NECESSARY

Treatability testing will be performed by the Respondents, at EPA's request, to assist in the detailed analysis of alternatives. In addition, if applicable, testing results and results and operating conditions will be used in the detailed design of the selected remedial technology. The following activities will be performed by the Respondents.

i. Conduct literature survey and determine the need for treatability testing (4.2.2)

The Respondents will conduct a literature survey to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. If practical candidate technologies have not been sufficiently demonstrated, or cannot be adequately evaluated, or cannot be adequately evaluated for this Site on the basis of available information, treatability testing will be conducted. Where it is determined by EPA that treatability testing is required, and unless the Respondents can demonstrate to EPA's satisfaction that they are not needed, the Respondents will submit a statement of work to EPA outlining the steps and data necessary to evaluate and initiate the treatability testing program.

ii. Evaluate treatability studies (4.2.3)

Once a decision has been made to perform treatability studies, the Respondents and EPA will decide on the type of treatability testing to use (e.g., bench versus pilot). Because of the time required to design, fabricate, and install pilot scale equipment as well as perform testing for various operating conditions, the decision to perform pilot testing should be made as early in the process as possible to minimize potential delays of the FS. To assure that a treatability testing program is completed on time, and with accurate results, the Respondents will either submit a separate treatability testing work plan or an amendment to the original site work plan for the Site for EPA review and approval.

iii. Treatability Testing and Deliverables (4.3)

The deliverables that will be required if treatability testing is conducted, in addition to the memorandum identifying candidate technologies, shall include a treatability testing statement of work, a work plan, a sampling and analysis plan, and a final treatability evaluation report. EPA may also require a treatability study health and safety plan, where appropriate.

If EPA determines that treatability testing is required and so notifies Respondents, Respondents shall, within fourteen (14) days thereafter, submit to EPA a Treatability Testing Statement of Work.

iv. Treatability testing work plan (4.3.2)

Within thirty (30) days of submission of the Treatability Testing Statement of Work, Respondents shall submit a Treatability Testing Work Plan, including a schedule. Upon its approval by EPA, said schedule shall be deemed incorporated into this Order by reference. If EPA disapproves of or requires revisions to the Treatability Testing Work Plan, in whole or in part, Respondents shall amend and submit to EPA a revised Treatability Testing Work Plan which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments.

The Respondents will prepare a treatability testing work plan or amendment to the original site work plan for the Site for EPA review and approval describing the background of the Site, remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The DQOs for treatability testing should be documented as well. If pilot scale treatability testing is to be performed, the pilot-scale work plan will describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan. If testing is to be performed off-site for the Site, the Respondents will address all necessary permitting requirements to the satisfaction of appropriate authorities.

v. Treatability study QAPP (4.3.3)

Within thirty (30) days of the identification by EPA of the need for a separate or revised QAPP, and HSP, Respondents shall submit to EPA a revised QAPP and HSP as appropriate. If EPA disapproves of or requires revisions to the revised QAPP and HSP, in whole or in part, Respondents shall amend and submit to EPA a revised treatability study QAPP and HSP, which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments.

If the original QAPP is not adequate for defining the activities to be performed during the treatability test, a separate treatability study QAPP or amendment to the original QAPP for the Site will be prepared by the Respondents for EPA review and approval. Task 1 of this Statement of Work provides additional information on the requirements of the QAPP.

vi. Treatability study health and safety plan (4.3.4)

If the original health and safety plan is not adequate for defining the activities to be performed during the treatment tests, a separate or amended health and safety plan will be developed by the Respondents. Task 1 of this statement of work provides additional information on the requirements of the health and safety plan. EPA does not "approve" the treatability study health and safety plan.

vii. Treatability study evaluation report (4.3.5)

Within thirty (30) days of completion of any treatability testing, Respondents shall submit a Treatability Study Evaluation Report to EPA. If EPA disapproves of or requires revisions to the Treatability Study Evaluation Report, in whole or in part, Respondents shall amend and submit to EPA a revised Treatability Study Evaluation Report which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments.

Following completion of treatability testing, the Respondents will analyze and interpret the testing results in a technical report to EPA. Depending on the sequences of activities, this report may be a part of the RI/FS report or a separate deliverable. The report will evaluate each technology's effectiveness, implementability, cost and actual results as compared with predicted results. The report will also evaluate full scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

G. TASK VI --BASELINE HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENTS

Respondents will prepare a Baseline Human Health Risk Assessment (BHHRA) for the Site which shall be incorporated by the Respondents into the RI. Respondents shall provide EPA with the following deliverables:

1. Baseline Human Health Risk Assessment.

A. Actual and potential cancer risks and non-cancer hazards to human health shall be identified and characterized in accordance with CERCLA, the NCP, and EPA guidances including, but not limited to, the RI/FS Guidance, "Land Use in the CERCLA Remedy Selection Process" (OSWER Directive No. 9355.7-04) and the definitions and provisions of "Risk Assessment Guidance for Superfund ("RAGS")," Volume 1, "Human Health Evaluation Manual," (December 1989) (EPA/540/1-89/002). Other EPA guidance to be used in the development of risk assessments is provided in Appendix 1A .

B. Representative contaminants and associated concentrations in media including groundwater, soil, sediment, and surface water for the BHHRA shall be determined utilizing all currently available media-specific analytical data generated during the RI/FS.

C. Memorandum on Exposure Scenarios and Assumptions. Within 45 days after approval of the RI/FS work plan, Respondents shall submit a memorandum describing the exposure scenarios and assumptions, taking into account for the BHHRA the present and reasonably anticipated future land use of the Site. The memorandum should include appropriate text describing the conceptual site model and exposure routes of concern for the site, and include a completed RAGS Part D Table 1. This table shall describe the pathways that will evaluated in the BHHRA, the rationale for their selection, and a description of those pathways that will not be evaluated. In addition, the Memorandum shall include a completed RAGS Part D Table 4 describing the exposure pathway parameters with appropriate references to EPA's 1991 Standard Default Assumptions and updated guidance developed by EPA. If EPA disapproves of or requires revisions to the memorandum, in whole or in part, which disapproval or required revisions shall be provided in writing with reasons for the disapproval or directions for revisions to make the submittal approvable, Respondents shall amend and submit to EPA a revised memorandum which is responsive to the directions in all EPA comments, within 14 days of receiving EPA's comments.

D. Pathway Analysis Report (PAR). The Respondent shall prepare and submit a PAR within forty-five (45) days after receipt of the last set of validated data. The PAR shall be developed in accordance with OSWER Directive 9285.7-01D-1 dated December 17, 1997 (or more recent version), entitled, "*Risk Assessment Guidelines for Superfund Part D*" and other appropriate guidance in Appendix 1A and updated thereto. The PAR shall contain all the information necessary for a reviewer to understand how the risks at the site will be assessed. The PAR will build on the Memorandum on Exposure Scenarios and Assumptions (see C above) describing the risk assessment process and how the risk assessment will be prepared. The PAR shall include completed RAGS Part D Tables 2, 3, 5, and 6 as described below. The PAR must be reviewed and approved by EPA prior to the submission of the draft BHHRA.

i. **Chemicals of Concern (COC).** The PAR shall contain all the information necessary for a reviewer to understand how the risks at the site will be evaluated.

a. Based on the results of the Site Characterization Summary Report the Respondent shall list the hazardous substances present in all sampled media (e.g., groundwater, soils, sediment, etc.) and the contaminants of potential concern ("COPCs") as described in the Risk Assessment Guidance for Superfund Part A.

b. Table 2- Selection of COCs. Representative contaminants and associated concentrations in sample media for the PAR shall be determined utilizing all currently available media-specific validated analytical data generated during the RI/FS. The selection of COCs shall follow Risk Assessment Guidance for Superfund (Part A) and before chemicals are deleted as COCs they shall be evaluated against the residential PRGs from Region IX. The COCs shall be presented in completed RAGS Part D Table 2 format.

ii. **Table 3 - Media Specific Exposure Point Concentrations**. Using the chemicals selected in Table 2, this Table shall summarize the Exposure Point Concentrations for all COCs for the various media. The calculation of the Exposure Point Concentration shall follow the 1992 Guidance Document on the calculation of the 95% Upper Confidence Limit (UCL) on the Mean. In those cases where the 95% UCL exceeds the mean the maximum concentration shall be used as the EPC.

iii. **Tables 5 and 6 - Toxicological Information**. This section of the PAR shall provide the toxicological data (e.g., Cancer Slope Factors, Reference Doses, Reference Concentrations, Weight of Evidence for Carcinogens, and adjusted dermal toxicological factors where appropriate) for the chemicals of concern. The toxicological data shall be presented in completed RAGS Part D Tables 5 and 6. The source of data in order of priority are: EPA's Integrated Risk Information System (IRIS), Health Effects Assessment Summary Tables (HEAST)-1997 and contact with EPA's National Center for Environmental Assessment. To facilitate a timely completion of the PAR, the Respondents shall submit a list of chemicals for which IRIS values are not available to EPA as soon as identified thus allowing EPA to facilitate obtaining this information from EPA's National Center for Environmental Assessment.

If EPA disapproves of or requires revisions to the PAR, in whole or in part, Respondents shall amend and submit to EPA a revised PAR which is responsive to the directions in all of EPA's written comments within twenty-one (21) days of receipt of EPA's comments.

E. Baseline Human Health Risk Assessment of the RI Report. Within forty-five (45) days of EPA's approval of the PAR, the Respondents shall submit to EPA a Draft BHHRA for inclusion in the RI. The submittal shall include completed RAGS Part D Tables 7 through 10 summarizing the calculated cancer risks and non-cancer hazards and appropriate text in the risk characterization with a discussion of uncertainties and critical assumptions (e.g., background concentrations and conditions). The Respondent shall perform the BHHRA in accordance with the approach and parameters described in the approved Memorandum of Exposure

Scenarios and Assumptions and the PAR describe above. Text and tables from these previously approved reports shall be included in the appropriate sections of the BHHRA.

If EPA disapproves of or requires revisions to the section, in whole or in part, which disapproval or required revision shall be provided in writing with reasons for the disapproval or directions for revisions to make the submittal approvable, Respondents shall amend and submit to EPA a revised report which is responsive to the directions in all EPA comments, within 30 days of receiving EPA's comments. The approved BHHRA shall be incorporated into the RI report.

1. Baseline Ecological Risk Assessment

Within forty-five (45) day after approval of the RI/FS work plan, the Respondents shall submit a Screening-Level Ecological Risk Assessment (SLERA) in accordance with current Superfund ecological risk assessment guidance (Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments [ERAGS], USEPA, 1997 [EPA/540-R-97-006]). The SLERA shall include a comparison of the maximum contaminant concentrations in each media of concern to appropriate conservative ecotoxicity screening values (e.g., NYSDEC Ambient Water Quality Standards and Guidance Values (AWQS), USEPA's Ambient Water Quality Criteria (AWQC), and NYSDEC Technical Guidance for Screening Contaminated Sediments), and should use conservative exposure estimates. EPA will review and approve the SLERA and determine whether a full Baseline Ecological Assessment is required.

If EPA determines that a full Baseline Ecological Assessment is required and so notifies Respondents, Respondents shall, within sixty (60) days thereafter, submit the full Baseline Ecological Assessment. Actual and potential ecological risks shall be identified and characterized in accordance with CERCLA, the NCP, and EPA guidances including, but not limited to, "Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments," (1997) (EPA/540-R-97-006), ERAGS, dated June 5, 1997 (or most recent guidance). Respondents shall submit to EPA a baseline ecological risk assessment section for inclusion in the RI report. If EPA disapproves of or requires revisions to the updated ecological assessment, in whole or in part, which disapproval or required revisions shall be provided in writing with reasons for the disapproval or directions for revisions to make the submittal approvable, Respondents shall amend and submit to EPA a final, updated ecological assessment which is responsive to the directions in all EPA comments. The Respondents shall evaluate and assess the risk to the environment posed by site contaminants. As part of this subtask, the Respondents shall perform the following activities:

a. Draft Ecological Risk Assessment Report. The Respondents shall prepare a draft Ecological Risk Assessment Report that addresses the following:

i. Hazard Identification (sources). The Respondents shall review available information on the hazardous substances present at the site and identify the major contaminants of concern.

ii. Dose-Response Assessment. The Respondents shall identify and select contaminants of concern based on their intrinsic toxicological properties.

iii. Characterization of Site and Potential Receptors. The Respondents shall identify and characterize environmental exposure pathways.

iv. Select Chemicals, Indicator Species, and End Points. In preparing the assessment, the Respondents will select representative chemicals, indicator species (species which are especially sensitive to environmental contaminants), and end points on which to concentrate.

v. Exposure Assessment - The exposure assessment shall identify the magnitude of actual or environmental exposures, the frequency and duration of these exposures, and the routes by which receptors are exposed. The exposure assessment shall include an evaluation of the likelihood of such exposures occurring and shall provide the basis for the development of acceptable exposure levels. In developing the exposure assessment, the Respondents shall develop reasonable maximum estimates of exposure for both current land use conditions and potential land use conditions at the site.

vi. Toxicity Assessment/Ecological Effects Assessment. The toxicity and ecological effects assessment shall address the types of adverse environmental effects associated with chemical exposures, the relationships between magnitude of exposures and adverse effects, and the related uncertainties for contaminant toxicity (e.g., weight of evidence for a chemical's carcinogenicity).

vii. Risk Characterization. During risk characterization, chemical-specific toxicity information, combined with quantitative and qualitative information from the exposure assessment, shall be compared to measured levels of contaminant exposure levels and the levels predicted through environmental fate and transport modeling. These comparisons shall determine whether

concentrations of contaminants at or near the site are affecting or could potentially affect the environment.

viii. Identification of Limitations/Uncertainties. The Respondents shall identify critical assumptions (e.g., background concentrations and conditions) and uncertainties in the report.

ix. Site Conceptual Model. Based on contaminant identification, exposure assessment, toxicity assessment, and risk characterization, the Respondents shall develop a conceptual model of the site.

b. Final Ecological Risk Assessment Report: Within 30 days of receiving EPA's comments on the Draft Ecological Assessment Report, the Respondents shall amend and submit to EPA a final report which is responsive to the directions in all EPA comments.

H. TASK VII - REMEDIAL INVESTIGATION REPORT

The Respondents shall prepare a Remedial Investigation (RI) report that accurately establishes the site characteristics such as the contaminated media, extent of contamination, and the physical boundaries of the contamination. This report shall summarize results of field activities to characterize the Site, sources of contamination, and the fate and transport of contaminants. Pursuant to this objective, the Respondent shall obtain only the minimum essential amount of detailed data necessary to determine the key contaminants movement and extent of contamination. The key contaminants must be selected based on persistence and mobility in the environment and the degree of hazard. The Respondent shall use existing standards and guidelines such as drinking water standards, water quality criteria, and other criteria accepted by EPA as appropriate for the situation that will be used to evaluate effects on human receptors who may be exposed to the key contaminants above appropriate standards or guidelines.

The RI report shall be written in accordance with the "Guidance for Conducting Remedial Investigations/Feasibility Studies under CERCLA," OSWER Directive 9355.3-01, October 1988, Interim Final (or latest revision) and "Guidance for Data Usability in Risk Assessment," (EPA/540/G-90/008), September 1990 (or latest revision) and consistent with the " Region II RI Report Guidelines."

The Respondents will refer to the RI/FS Guidance for an outline of the report format and contents. Following comment by EPA, the Respondents will prepare a final RI report which satisfactorily addresses EPA's comments.

1. Draft Remedial Investigation Report

In accordance with the schedule in the approved RI/FS work plan, the Respondents shall submit a draft RI report that is consistent with the "Region II RI Report Guidelines."

2. Final Remedial Investigation Report

Within 30 days of receiving EPA's comments on the Draft RI Report, the Respondents shall amend and submit to EPA a final report which is responsive to the directions in all EPA comments.

I. TASK VIII- DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES

Concurrent with the RI site characterization task, the Respondents will begin to develop and evaluate a range of appropriate waste management options that at a minimum ensure protection of human health and the environment. The development and screening of remedial alternatives shall develop an appropriate range of waste management options that will be evaluated. This range of alternatives should include options in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The following activities will be performed as a function of the development and screening of remedial alternatives.

1. Development and Screening of Remedial Alternatives (5.2)

i. Develop general response action (5.2.2)

The Respondents will develop general response actions for each medium of interest defining containment, treatment, excavation, pumping, or other actions, singly or in combination to satisfy the remedial action objective.

ii. Identify areas or volumes of media (5.2.3)

The Respondents will identify areas or volumes of media to which general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The chemical and physical characterization of the Site will also be taken into account.

iii. Assemble and document alternatives (5.2.6)

The Respondents will assemble selected representative technologies into alternatives for each affected medium or operable unit.

Together, all of the alternatives will represent a range of treatment and containment combinations that will address either the Site or the operable unit(s) as a whole. A summary of the assembled alternatives and their related action-specific ARARS will be prepared by the Respondents for inclusion in a technical memorandum.

The reasons for eliminating alternatives during the preliminary screening process must be specified.

iv. Refine alternatives (5.2.7)

The Respondents will refine the remedial alternatives to identify contaminant volume addressed by the proposed process and sizing of critical unit operations as necessary. Sufficient information will be collected for an adequate comparison of alternatives. PRGs for each chemical in each medium will also be modified as necessary to incorporate any new risk assessment information presented in the baseline risk assessment report. Additionally, action-specific ARARs will be updated as the remedial alternatives are refined.

v. Conduct and document screening evaluation of each alternative (5.2.8)

The Respondents may perform a final screening process based on short and long term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available for detailed analysis. If necessary, the screening of alternatives will be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening will preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives will include options that use treatment technologies and permanent solutions to the maximum extent practicable.

2. Alternatives Development and Screening Deliverables (5.3)

Within thirty (30) days after EPA's approval of the Baseline Risk Assessment or within thirty (30) days after EPA's approval of Respondents' Treatability Study Evaluation Report (if treatability studies are undertaken), whichever is later, Respondents shall make a presentation to EPA and the State identifying the remedial action objectives and summarizing the development and preliminary screening of remedial alternatives and prepare a technical memorandum summarizing the work performed in, and the results of, each task above, including an alternatives array summary. The memorandum shall also summarize the reasoning employed in screening, arraying alternatives that remain after screening, and identifying the action-specific ARARs for the alternatives that remain after screening. If required by EPA's comments, these remaining alternatives will be modified by the Respondents to assure that a complete and appropriate range of viable alternatives are identified and considered in the detailed analysis. This deliverable will document the methods, rationale, and results of the alternatives screening process.

3. Detailed analysis of remedial alternatives

The detailed analysis will be conducted by the Respondents to provide EPA with the information needed to allow for the selection of a remedy for the Site. This analysis is the final task to be performed by Respondents during the FS.

i. Detailed Analysis of Alternatives (6.2)

The Respondents will conduct a detailed analysis of alternatives which will consist of an analysis of each option against a set of nine evaluation criteria and a comparative analysis of all options using the same evaluation criteria as a basis for comparison.

ii. Apply nine criteria and document analysis (6.2.1-6.2.4)

The Respondents will apply nine evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative will be protective of human health and the environment; will be in compliance with, or include a waiver of, ARARS; will be cost-effective; will utilize permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state (or support agency) acceptance; and (9) community acceptance.

(Note: criteria 8 and 9 are considered after the RI/FS report has been released to the general public.) For each alternative, the Respondents should provide: (1) a description of the alternative that outlines the waste management strategy involved and identifies the key ARARs associated which each alternative, and (2) a discussion of the individual criterion assessment. If the Respondents do not have direct input on criteria (8) state (or support agency) acceptance and (9) community acceptance, these will be addressed by EPA.

iii. Compare alternatives against each other and document the comparison of alternatives (6.2.5; 6.2.6)

The Respondents will perform a comparative analysis between the remedial alternatives. That is, each alternative will be compared against the others using the evaluation criteria as a basis of comparison. Identification and selection of the preferred alternative are reserved by EPA. The Respondents will prepare a technical memorandum summarizing the results of the comparative analysis.

iv. Detailed Analysis Deliverables(6.3)

The Respondents will submit a draft FS report to EPA for review and approval. Once EPA's comments have been addressed by the Respondents to EPA's satisfaction, the final FS report may be bound with the final RI report.

J. TASK IX - FEASIBILITY STUDY REPORT (6.4)

The Respondent shall prepare a Feasibility Study (FS) Report consisting of a detailed analysis of alternatives and a cost-effectiveness analysis, in accordance with the National Contingency Plan (NCP), 40 CFR Part 300, as well as the most recent guidance. Within thirty (30) days of the Task VIII presentation to EPA, Respondents shall submit to EPA a Draft FS report which reflects the findings in the approved Baseline Risk Assessment. Respondents shall refer to the RI/FS Work Plan and the RI/FS Guidance and the SOW for report content and format. Within fourteen (14) days of submitting the draft FS report, Respondents shall make a presentation to EPA and the State at which Respondents shall summarize the findings of the draft FS report and discuss EPA's and the State's preliminary comments and concerns associated with the draft FS report. If EPA disapproves of or requires revisions to the draft FS report, in whole or in part, Respondents shall amend and submit to EPA a revised draft FS report which is responsive to the directions in EPA's comments, within twenty-one (21) days of receiving EPA's written comments.

The Respondents will prepare a draft FS report for EPA review and comment. The FS report shall contain the following:

- Summarize Feasibility Study objectives
- Summarize remedial objectives
- Articulate general response actions
- Identification and screening of remedial technologies
- Remedial alternatives description
- Detailed analysis of remedial alternatives
- Summary and conclusions

The Respondent's technical feasibility considerations shall include the careful study of any problems that may prevent a remedial alternative from mitigating site problems. Therefore, the site characteristics from the RI must be kept in mind as the technical feasibility of the alternative is studied. Specific items to be addressed are reliability (operation over time), safety, operation and maintenance, ease with which the alternative can be implemented, and time needed for implementation.

APPENDIX 1A

REFERENCES FOR CITATION

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RI/FS process:

The (revised) National Contingency Plan

"Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-01

"Interim Guidance on Potentially Responsible Party Participation in Remedial Investigation and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, Appendix A to OSWER Directive No. 9355.3-01.

"Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, OSWER Directive No. 9835.3

"A Compendium of Superfund Field Operations Methods," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.

"EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984, EPA-330/9-78-001-R.

"Data Quality Objectives for Remedial Response Activities, " U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.

"Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29,1980.

"EPA Requirements for QAPPs for Environmental Data Operations,"U.S. EPA, Office of Emergency and Remedial Response, QA/R-5, October 1998.

"Interim Guidelines and Specifications for Quality Assurance Project Plans," U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.

"Users Guide to the EPA Contract Laboratory," U.S. EPA, Sample Management Office, August 1982.

"Interim Guidance with Applicable or Relevant and Appropriate Requirements, U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.

"CERCLA Compliance with Other Laws Manual," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (draft), OSWER Directive No. 9234.1-01 and -02.

"Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," U.S." U.S. EPA, Office of Emergency and Remedial Response, (draft), OSWER Directive No. 9283.1-2.

"Draft Guidance on Superfund Decision Documents," U.S. EPA, Office of Emergency and Remedial Response, March 1988, OSWER Directive No. 9355.-02

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual" (Part A), EPA/540/1-89/002

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual" (Part B), EPA/540/R-92/003

"Risk Assessment Guidance for Superfund - Volume II Environmental Evaluation Manual," March 1989, EPA/540/1-89/ 001

"Guidance for Data Useability in Risk Assessment," October, 1990, EPA/540/G-90/008

"Performance of Risk Assessments in Remedial Investigation/Feasibility Studies (RI/FSs) Conducted by Potentially Responsible Parties (PRPs)," August 28, 1990, OSWER Directive No.9835.15.

"Risk Evaluation of Remedial Alternatives" (Part C), December 1991, OSWER Directive 9285.7-01C.

"Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," April 22, 1991, OSWER Directive No. 9355.0-30.

"Supplemental Guidance to RAGS: Calculating the Concentration Term," May 1992, OSWER Directive 9285.7-081.

"Health and Safety Requirements Employed in Field Activities," U.S. EPA, Office of Emergency and Remedial Response, July 12, 1981, EPA Order No. 1440.2.

OSHA Regulations in 29 CFR 1910.120 (Federal Register 45654, December 19, 1986).

"Interim Guidance on Administrative Records for Selection of CERCLA Response Actions," U.S. EPA, Office of Waste Programs Enforcement, March 1, 1989, OSWER Directive No. 9833.3A.

"Community Relations in Superfund: A Handbook," U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.0#3B.

"Community Relations During Enforcement Activities And Development of the Administrative Record," U.S. EPA, Office of Programs Enforcement, November 1988, OSWER Directive No. 9836.0-1a.

HUMAN HEALTH RISK ASSESSMENT GUIDANCE DOCUMENTS

Superfund Risk Assessment Guidance

USEPA, 1989, Risk Assessment Guidance for Superfund (RAGS); Volume I Human Health Evaluation Manual Part A. OERR. EPA/540/1-89/002. December. Available at: http://www.epa.gov/superfund/programs/risk/ragsa/index.htm

USEPA, 1990, Risk Assessment Guidance for Superfund (RAGS); Volume I, Human Health Evaluation Manual, (Part B, Development of Risk-Based Preliminary Remediation Goals) OERR, EPA/540/R-92/003. Available at: www.epa.gov/superfund/programs/risk/ragsb/index.htm

USEPA, 1991. Risk Assessment Guidance for Superfund (RAGS); Volume I, Human Health Evaluation Manual (Part C, Risk Evaluation of Remedial Alternatives), OSWER Directive 9285.7-01C, December 1991. Available at: www.epa.gov/superfund/programs/risk/ragsc/index.htm

USEPA, 1996. Revised Policy on Performance of Risk Assessments During Remedial Investigation/Feasibility Studies (RI/FS) Conducted by Potentially Responsible Parties, OSWER Directive No. 9340.1-02 mistakenly numbered 9835.15c.

USEPA, 1997. Risk Assessment Guidance for Superfund (RAGS); Volume I, Human Health Evaluation Manual, Part D., OERR, Interim Publication No. 9285.7-01D. Available at: www.epa.gov/superfund/programs/risk/ragsd/index.htm

USEPA, 1999. Risk Assessment Guidance for Superfund (RAGS). Volume I, Community Involvement in Superfund Risk Assessments. OSWER 9285.7-01, EPA540-R-98-042, PB-99-96303, March 1999. Available at: www.epa.gov/superfund/programs/risk/ragsa/c1_ra.pdf.

Exposure Factors

USEPA, 1991, RAGS Volume I: Human Health Evaluation Manual Supplemental Guidance. Standard Default Exposure Factors. OSWER Directive 9285.6-03. March 25, 1991.

USEPA, 1992. Supplemental Guidance to RAGS: Calculating the Concentration Term. OSWER 9285.7-081. May 1992.

USEPA, 1997. Exposure Factors Handbook - Final, Office of Health and Environmental Assessment, Washington, D.C. Available at: www.epa.gov/ncea/exposfac.htm.

Dermal Exposure

USEPA, 1992. Dermal Exposure Assessment: Principles and Applications. OSWER. EPA/600/8-91/011B. January. Available at: http://www.epa.gov/ncea/dermal.htm.

USEPA, 1999. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual: (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim Guidance,

OSWER Directive 9285.7-10. Please contact Region II risk assessors to discuss any potential updates to the factors in this guidance.

Toxicity and Chemical Specific Guidance

USEPA, current version. Integrated Risk Information System (IRIS); On-line Service. Available at : (www.epa.gov/iris).

USEPA, 1993. Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA/600/R-93/C89. July 1993.

USEPA, 1996. PCBs: Cancer dose-response assessment and application to environmental mixtures. EPA/600/P-96/001A. Available at: http://www.epa.gov/ncea/pcbs.html.

USEPA. 1997. Health Effects Assessment Summary Tables (HEAST), FY'97 Update. U. S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA/540-F-97-036. July 1997.

Risk Characterization Guidance

USEPA 1995. Memorandum from Carole Browner on Risk Characterization, U.S. EPA, February 22, 1995. Available at: http://www.epa.gov/ordntrnt/ORD/spc/2riskchr.html.

USEPA, 1995. EPA Risk Characterization Program. Memo from Administrator Carol Browner dated March 21, 1995. Available at: http://www.epa.gov/ordntrnt/ORD/spc/2riskchr.html.

Risk Assessment Guidelines and Policies

USEPA, 1986. Risk Assessment Guidelines for Mutagenicity Risk Assessment. 51 Federal Register 34006, September 24, 1986.

USEPA, 1986. Risk Assessment Guidelines for Chemical Mixtures 51 Federal Register 34014, September 24, 1986.

USEPA, 1992. Risk Assessment Guidelines for Exposure Assessment. Federal Register. Available at: http://www.epa.gov/nceawww1/exposure.htm

USEPA, 1995. Neurotoxicity Cancer Guidelines. Federal Register.60 FR 52-32-52056, October 4, 1995.

USEPA, 1996. Proposed Guidelines for Carcinogen Risk Assessment. EPA/600/P-92/003C. Available from: http://www.epa.gov/ORD/WebPubs/carcinogen/.

USEPA, 1996. Guidelines for Reproductive Toxicity Risk Assessment. EPA/630/R-96/009, September 1996. Available at: http://www.epa.gov/ORD/WebPubs/repro/.

USEPA, 1996. Proposed Guidelines for Carcinogen Risk Assessment. EPA/600/P-92/003C April 1996. Available at: http://www.epa.gov/ORD/WebPubs/carcinogen.

Data Useability and Quality

USEPA, 1992. Final Guidance on Data Useability in Risk Assessment (Part A), OSWER Directive 9285.7-09A., June 1992. Available at: www.epa.gov/programs/risk/datause/parta.htm.

USEPA, 1992. Guidance for Data Useability in Risk Assessment (Part B), OSWER Directive 9285.7-09B, August 1992. Available at: www.epa.gov/programs/risk/datause/partb.html.

USEPA, 1993. Data Quality Objectives Process for Superfund, Interim Final Guidance. OSWER Publication 93559-01, EPA 540-R-93-071.

Air

USEPA, 1989. Air/Superfund national Technical Guidance Study Services, Volumes I-IV, EPA 450/1-89/001, 002, 003, 004, July 1989.

Soil

USEPA, 1993. Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. OSWER Directive #9355.4-12.

USEPA, 1996. Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soils. Available at: http://www.epa.gov/superfund/programs/lead/prods.htm.

USEPA, 1996. Soil Screening Guidance, Fact Sheet. EPA 540/F-95/041. Available at: www.epa.gov/superfund/resources/soil/index.htm#fact.

USEPA, 1996. Soil Screening Guidance: User's Guide. EPA Doc. # 540/R-96/018, July 1996. Available at: www.epa.gov/superfund/resources/soil/

USEPA, 1996. Final Soil Screening Guidance, and Associated Appendices. May 17, 1996. Soil Screening Guidance User's Guide, EPA 540/R-96/018. Available at: www.epa.gov/superfund/resources/soil/

USEPA, 1996. Soil Screening Guidance: Technical Background Document (TBD) EPA Document Number: EPA/540/R-95/128, July 1996 Available at: www.epa.gov/superfund/resources/soil/.

Lead

USEPA, 1994. Technical Support Document for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (December 1994) [NTIS #PB94-963505, OSWER #9285.7-22]. Software available at: http://www.epa.gov/superfund/programs/lead/prods.html.

USEPA, 1994. Validation Strategy for The Integrated Exposure Uptake Biokinetic Model for Lead in Children (December 1994). Available at: http://www.epa.gov/superfund/programs/lead/prods.htm.

USEPA, 1994. Guidance Manual for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (February 1994) [NTIS #PB93-963510, OSWER #9285.7-15-1]. Available at: http://www.epa.gov/superfund/programs/lead/prods.htm.

USEPA, 1998. Proposed TSCA §403 Soil Lead Hazard and OSWER's Lead-in-Soils Policy. EPA 540-F-98-061, OSWER 9200.4-29, PB 99-963211. Memorandum from Lynn Goldman and Tim Fields to Regional Administrators. Available at: http://www.epa.gov/superfund/programs/lead/prods.htm

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Risk Management

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Chemical Specific Documents of Interest

Chemical specific documents for mercury, lead, and perchlorate are available at: www.epa.gov/nceawww1/healthri.html.

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